

a barrel disposed within the bore in the shell and being rotatable relative thereto;

a shape memory alloy actuator, located in said barrel, for enabling operation of said lock cylinder by selective controlled application of heat to said actuator; and

thermal interlock protection means, located in said barrel, for preventing operation of said lock cylinder in the event of external heating of said lock cylinder.--

REMARKS

Claims 1-26 remain pending in this application.
Reconsideration is requested.

Applicants affirm the election of species A, consisting of Figs. 1-19. As stated, claims 13 and 21 are generic. Claim 20, presently withdrawn from further consideration, is dependent upon claim 13; as such, claim 20 should be allowed once claim 13 is deemed allowable.

In response to the rejection of claims under 35 U.S.C. § 112, second paragraph, as being indefinite, claims 2, 3, 14, 15, 23 and 24 have been amended to eliminate any issue of indefiniteness which may have existed. Withdrawal of this ground of rejection is requested.

The rejection of claims 1 and 21 under 35 U.S.C. § 102 as being anticipated by Thordmark et al., U.S. Patent No. 5,542,274 (Thordmark) is respectfully traversed.

Thordmark discloses in Fig. 1 the use of a blocking element 11 having projections 11a which engage with grooves 10a in a latch element 10 located in an outer shell 2 of a cylinder lock. As shown in Fig. 3, the latch element 10 is spring-biased to sit in a groove 3c in a barrel 3. The blocking element 11 is moved with a motor 12 so that the projections 11a will align with the grooves 10a of the latch, such that the latch will be cammed by rotation of the barrel, when the lock is to be opened.

Unlike the present invention as set forth in claim 1, Thordmark fails to disclose a blocking mechanism positionable in a blocking position relative to a side bar, to block motion of the side bar with respect to the shell. While Thordmark appears to show a side bar 7 in Fig. 3, the latch 10 and blocking element 11 do not block motion relative to the side bar, but rather latch 10 blocks motion relative to the plug or barrel 3. Instead, motion of the side bar is blocked by side tumblers 5.

Claim 21 requires an electromechanical lock cylinder including a blocking mechanism located in the barrel of the lock cylinder, and electronic control means located in the barrel cooperating with the blocking mechanism to selectively move the blocking mechanism from a blocking to an unblocking position upon occurrence of a predetermined condition. In contradistinction, Thordmark discloses a blocking element 11, latch 10 and motor 12 located in the outer shell of the lock. As such, Thordmark

cannot anticipate claim 21. Reconsideration and withdrawal of this ground of rejection is requested.

The rejection of claims 13, 17-19, 21, 22, 25 and 26 under 35 U.S.C. § 102(b) as being clearly anticipated by Aston, U.S. Patent No. 5,351,042, is also respectfully traversed.

Aston appears to disclose in Fig. 4 the use of a heatable nickel titanium wire 40 as an actuator for a spring-loaded lever 42 engaged in a recess of a lock barrel as a blocking mechanism for preventing rotation of the barrel. The wire 40 is connected to the outer shell of the lock through a tension spring 41, and the lever 42 is connected to the shell through a return spring (not numbered).

Claim 13 has been amended to specify that the shape memory alloy actuator is disposed within the barrel of the lock. This is shown in Figs. 1, 10A, 10B, 15, 16 and 19 of the present application. As disclosed at page 4, l. 25 to page 5, l. 6 of the present specification, an important benefit of the present invention lies in providing the actuator device within the barrel. This permits the barrel to be removed and placed in the outer shells of different lock cylinders, permits the barrel to be substituted for the barrel of a purely mechanical lock cylinder as a retrofit, and additionally allows the utilization of different but interchangeable electromechanical barrels with a plurality of lock cylinders in a lock system. Aston completely

fails to disclose or even recognize such benefits, and fails to anticipate independent claims 13, 21 or 26 as amended.

Withdrawal of this ground of rejection is requested.

The additional rejection of claims 2, 4-6, 9-11, 15, 16 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Aston in view of Thordmark, and the rejection of claims 3, 7, 8, 12, 14 and 23 as being unpatentable over Aston in view of Thordmark and further in view of Surko, Jr., U.S. Patent No. 4,638,651, also are respectfully traversed.

The Examiner alleges that it would have been obvious to attach the nitinol wire actuator of Aston to an electromechanical lock having a sidebar as disclosed by Thordmark. Even if such modification of Thordmark were undertaken, however, the claimed invention would not be attained. Specifically, Thordmark discloses electromechanical blocking mechanism 10, 11 and 12 located in the outer shell of the lock, which does not block motion of sidebar 7. Aston does not teach or suggest the use of a shape memory alloy wire as an actuator for a blocking mechanism which blocks motion of a side bar. If such electromechanical blocking mechanism of Thordmark were replaced with the mechanism shown in Fig. 4 of Aston, this shortcoming of Thordmark vis-a-vis the claimed invention would not be remedied. As such, this ground of rejection should be withdrawn.

Surko, Jr. discloses a purely mechanical lock cylinder wherein the pin tumbler core is provided with an additional set of disc tumblers to engage contours on the bottom rail of a key. Surko, Jr. is irrelevant to the present invention, such that no combination of Surko, Jr. with Thordmark or Aston would result in the invention set forth in the independent claims. As such, the rejection of claims based on the addition of Surko, Jr. to the main combination of references should be withdrawn.

In view of the foregoing, favorable reconsideration of this application and the issuance of a Notice of Allowance are earnestly solicited.

Please charge any fee or credit any overpayment pursuant to 37 CFR 1.16 or 1.17 to Deposit Account No. 02-2135.

Respectfully submitted,

ROTHWELL, FIGG, ERNST & KURZ, p.c.

By Vincent M De Luca
Vincent M. DeLuca
Attorney for Applicants
Registration No. 32,408

555 Thirteenth Street, N.W.
Suite 701 East Tower
Washington, D.C. 20004
Telephone: (202)783-6040